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**From:** Wu, Jennifer  
**To:** Liu, Linda; Carvalho, Gabriela  
**Sent:** 7/31/2014 10:57:49 AM  
**Subject:** RE: Oregon CZARA and Pesticides

Hi Linda and Gabriela,

Thanks again for putting these responses together!

Re: the following comment, do you have a contact at NOAA/NMFS who worked on/is working on the litigation?

Thanks - Jenny

'We don't believe that "non-fish bearing streams" is a term that is used in either the lawsuit or in the Biological Opinions. "Salmon-supporting waters" is the term that is used by the plaintiff. NMFS assesses impacts to "listed species and their designated critical habitats" and "salmon bearing waters" are discussed in the biological opinions. This would be a good question for NOAA/NMFS.'

**From:** Liu, Linda  
**Sent:** Wednesday, July 23, 2014 10:15 AM  
**To:** Helder, Dirk  
**Cc:** Wu, Jennifer  
**Subject:** RE: Oregon CZARA and Pesticides

Thank you for the additional information, Dirk!

Have fun at the crop tour. Hopefully you'll see an old friend or two from OPP next week.

Linda  
(206) 553-1447

**From:** Helder, Dirk  
**Sent:** Wednesday, July 23, 2014 9:35 AM  
**To:** Carvalho, Gabriela; Wu, Jennifer  
**Cc:** Henning, Alan; Peterson, Erik; Woodruff, Leigh; Liu, Linda  
**Subject:** RE: Oregon CZARA and Pesticides

All,  
Some additional comments in RED below. Gabriela provided a lot of useful information. Also, I will be on a pesticide registration and crop tour with 6 folks from the HQ Pesticide Program in Washington beginning next Tues to Thursday and won't be on our next call. I will be in on Monday.  
Thanks,  
DH

**From:** Carvalho, Gabriela  
**Sent:** Wednesday, July 23, 2014 9:13 AM  
**To:** Wu, Jennifer  
**Cc:** Henning, Alan; Helder, Dirk; Peterson, Erik; Woodruff, Leigh; Liu, Linda  
**Subject:** RE: Oregon CZARA and Pesticides

Hi Jennifer,

Please pardon the late response. **Ex. 6 - Personal Privacy** and it's taken a little while to get caught up. Here are some answers to your questions below. We'd be happy to talk this through with your team in person.

- i. Current Pesticide Labels. Based on Gabriela's August 16, 2013 write-up, it appears that aerial application of atrazine is not allowed, and the pesticide labels are silent on buffers for aerial application of 2,4-D, though there's general information on how it should be applied. Can you confirm?

The label language examples in the attached document may not be indicative of the application restrictions and warnings on every product label that contains the specific active ingredient. The Reregistration Eligibility Decision (RED) document for a particular active ingredient may specify label requirements above and beyond standard hazard and precaution statements. If the RED does not list specific requirements, you would have to review every product label before making general statements about what a pesticide label will say.

Atrazine products do exist in which aerial applications is an allowed application method per the label instructions. Here is an example. <http://pest.ca.uky.edu/PSEP/Private/Drexel%20Atrazine%204L.pdf> This example label includes a statement regarding buffers: "This product must not be applied aerially or by ground within 66 feet of the points where field surface water runoff enters perennial or intermittent streams and rivers or within 200 feet around natural or impounded lakes and reservoirs. If this product is applied to highly erodible land, the 66-foot buffer or setback from runoff points must be planted to crop or seeded with grass or other suitable crop."

Some 2,4-D labels might include language that indicate a buffer is required during application. Here is an example: [http://provmweb.com/english/Products/Labels/24d%20Ester%20LV700\\_Label\\_Eng.pdf](http://provmweb.com/english/Products/Labels/24d%20Ester%20LV700_Label_Eng.pdf) In the aerial application use precautions section, it states, "Do not apply to any body of water. Avoid drifting of spray onto any body of water or other non-target areas. Specified buffer zones should be observed." Granted, this language is not specific regarding the buffer that is required.

- ii. Current Pesticide Labels. What are the pesticide label requirements for aerial application of glyphosate?

The Label Review Manual Chapter on Environmental Hazards provides general statements for pesticides that may be aerially applied. For aerial forestry applications, the pesticide label will include a statement that allows spraying of the forest canopy, but requires spray valves to be shut off when passing over ponds, streams, etc. that are not under the forest canopy (see pgs. 8-3 and 8-4).

For glyphosate specifically, The Reregistration Eligibility Decision (RED) for Glyphosate doesn't address aerial applications. You can reference the RED Fact Sheet for Glyphosate for an overview of findings from the RED

Here is an example label that discusses aerial applications of glyphosate. [http://www.agrian.com/pdfs/Glyphosate\\_4\\_\(Epa\\_120605\)\\_Label.pdf](http://www.agrian.com/pdfs/Glyphosate_4_(Epa_120605)_Label.pdf) It states, "Avoid direct application to any body of water." It then goes on to state under the Spray Drift Management Section, "Avoiding spray drift is the responsibility of the applicator. The potential for spray drift is determined by the interaction of many equipment and weather related factors. All applicators and growers must consider all of these factors when making decisions regarding product application." I did not find any specific statements related to buffers around water bodies but buffers around adjacent vegetation are mentioned in the section on Christmas Tree Plantations in Oregon and Washington: "To prevent drift onto nearby desirable crops or vegetation, ensure that adequate buffers are maintained..." then it goes on to address aerial applications to Christmas Tree Plantations, "Do not apply during low level inversion conditions, when winds are gusty or under any other conditions which favor drift. Drift may cause damage to any vegetation contacted to which treatment is not intended. Maintain appropriate buffer zones to prevent injury to adjacent desirable vegetation." Similar language is listed under other crop sections.

- iii. Court Orders/BiOps. Do the BiOps/court orders or related litigation outcomes speak to aerial application of herbicides on non-fish bearing streams? Are there court-mandated buffers for aerial application of atrazine, 2,4-D, or glyphosate?

The June 2014 court settlement establishes 60 ft. ground and 300 ft. aerial application buffers for carbaryl, chlorpyrifos, diazinone, malathion and methomyl for risks to endangered salmon/steelhead. The court settlement only addresses these 5 pesticides. As Gabriele points out, there may be other buffers for other pesticides but those buffers would not be for ESA species and would be take some time to evaluate which product have buffers since there are likely more than 20,000 pesticide products registered with EPA.

We don't believe that "non-fish bearing streams" is a term that is used in either the lawsuit or in the Biological Opinions. "Salmon-supporting waters" is the term that is used by the plaintiff. NMFS assesses impacts to "listed species and their designated critical habitats" and "salmon bearing waters" are discussed in the biological opinions. This would be a good question for NOAA/NMFS.

As a result of the Washington Toxics Coalition (WTC) v. EPA lawsuit, the judge imposed an injunctive relief (buffers of 100 yards for aerial applications for certain pesticides) until the National Marine Fisheries Service issued Biological Opinions that addressed listed threatened and endangered Pacific salmonids and their designated critical habitat. See page 12 of the Order at <http://watoxics.org/files/order-01-22-04.pdf> which lists the conditions which warrant termination of injunctive relief.

Atrazine was listed at the beginning of the lawsuit, but EPA and NMFS agreed that the active ingredient either was not likely to adversely affect or had no effects on listed species and their critical habitats; therefore, Atrazine applications no longer need to abide by court-ordered buffers.

The herbicide 2,4-D was included in the WTC lawsuit and on June 30, 2011, NMFS issued a Biological Opinion for 2,4-D, thus terminating any court-ordered buffers for applications involving 2,4-D. The NMFS Biological Opinion states Reasonable and Prudent Measures for 2,4-D applications. See pages 784-787: [http://www.nmfs.noaa.gov/pr/pdfs/consultations/pesticide\\_opinion4.pdf](http://www.nmfs.noaa.gov/pr/pdfs/consultations/pesticide_opinion4.pdf)

Glyphosate was not part of the WTC lawsuit so WTC court-ordered buffers do not apply to glyphosate applications.

- iv. Scientific Considerations in Pesticide Labels. How does FIFRA take into account endangered species and human health risks when developing its labels? Are there write-ups specific to the pesticide labels for atrazine, 2,4-D, and glyphosate with scientific papers we can have access to? The point of this would be to see if the basis of the pesticide labels already considered scenarios that are brought up in the comments.

The Pesticide Program performs a comprehensive risk assessment that evaluates risk to workers, homeowners, dietary risk and drinking water risk and non-target ecological risk.

**Ex. 5 - Deliberative**

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Based on how a pesticide is used, all routes of exposure are included in the risk assessment and we could look at the Reregistration Evaluation Document (RED) to see what exposure routes and risk conclusions exist for each product mentioned in the comments.

An overview of EPA's ecological (which includes endangered species) and human health risk assessment processes can be found at [http://www.epa.gov/pesticides/about/overview\\_risk\\_assess.htm#ecological](http://www.epa.gov/pesticides/about/overview_risk_assess.htm#ecological).

For specific pesticide active ingredients:

#### **Atrazine**

Chemical Information: <http://iaspub.epa.gov/apex/pesticides>

[/f?p=CHEMICALSEARCH:3:0::NO:21,3,31,7,12,25:P3\\_XCHEMICAL\\_ID:1273](http://iaspub.epa.gov/apex/pesticides/f?p=CHEMICALSEARCH:3:0::NO:21,3,31,7,12,25:P3_XCHEMICAL_ID:1273)

RED: [http://www.epa.gov/opp00001/chem\\_search/reg\\_actions/reregistration/red\\_PC-080803\\_1-Apr-06.pdf](http://www.epa.gov/opp00001/chem_search/reg_actions/reregistration/red_PC-080803_1-Apr-06.pdf)

Updates: [http://www.epa.gov/pesticides/reregistration/atrazine/atrazine\\_update.htm](http://www.epa.gov/pesticides/reregistration/atrazine/atrazine_update.htm)

Cumulative Risk Assessment: [http://www.epa.gov/pesticides/cumulative/common\\_mech\\_groups.htm#triazine](http://www.epa.gov/pesticides/cumulative/common_mech_groups.htm#triazine)

#### **2,4-D**

Chemical Information: <http://iaspub.epa.gov/apex/pesticides>

[/f?p=CHEMICALSEARCH:3:0::NO:21,3,31,7,12,25:P3\\_XCHEMICAL\\_ID:512](http://iaspub.epa.gov/apex/pesticides/f?p=CHEMICALSEARCH:3:0::NO:21,3,31,7,12,25:P3_XCHEMICAL_ID:512)

RED: [http://www.epa.gov/opp00001/chem\\_search/reg\\_actions/reregistration/red\\_PC-030001\\_1-Jun-05.pdf](http://www.epa.gov/opp00001/chem_search/reg_actions/reregistration/red_PC-030001_1-Jun-05.pdf)

Fact Sheet: [http://www.epa.gov/opp00001/chem\\_search/reg\\_actions/reregistration/fs\\_PC-030001\\_30-Jun-05.pdf](http://www.epa.gov/opp00001/chem_search/reg_actions/reregistration/fs_PC-030001_30-Jun-05.pdf)

#### **Glyphosate**

Chemical Information: <http://iaspub.epa.gov/apex/pesticides>

[/f?p=CHEMICALSEARCH:3:0::NO:1,3,31,7,12,25:P3\\_XCHEMICAL\\_ID:2477](http://iaspub.epa.gov/apex/pesticides/f?p=CHEMICALSEARCH:3:0::NO:1,3,31,7,12,25:P3_XCHEMICAL_ID:2477)

- v. States Developing Their Own Buffers. While FIFRA clearly states that adhering to the label means meeting FIFRA requirements, are there other thresholds in CZARA such as needing to meet state water quality standards that would mean the State would need to come up with more restrictive pesticide buffer applications? For instance, WA and ID have state laws that require buffers when applying pesticides on non-fish bearing streams that are above and beyond FIFRA. Linda and Gabriela, are you involved in conversations with the State when they choose to apply more restrictive buffers than required by FIFRA?

Each pesticide used in the US is registered with EPA with a national label that includes label restrictions to ensure the pesticide is safe for humans and the environment. In addition, all pesticides are also registered by each State Department of Agriculture. The state can require any additional restrictions that it deems necessary. Most states do not require additional restrictions because that puts their state at a disadvantage to other growers using the same pesticide across the state line. But, if a state identifies a concern they can require additional restrictions. It doesn't happen very often but I worked on a product that was highly mobile and used on blueberries in Maine, they required additional restrictions because it was getting into people's well from the high mountain applications on blueberries. The states do not need EPA approval for those additional restrictions although we are generally aware of them.

Oregon Department of Agriculture hasn't instituted buffers for pesticide applications that are more restrictive than federal requirements. When Oregon has instituted more restrictive requirements for pesticide applications, they have done so by enacting a full prohibition of certain active ingredients or certain application methods. For example, on June 26, 2014, Oregon enacted an emergency, temporary rule prohibiting the use of any product containing the neonicotinoid insecticides dinotefuran or imidachlorprid on linden trees. This emergency, temporary administrative rule is in effect from June 26, 2014, to December 23, 2014. Please see the following web page for this rule: [http://www.oregon.gov/ODA/PEST/docs/pdf/2014\\_Bee\\_Dino\\_Imid\\_%20Rule.pdf](http://www.oregon.gov/ODA/PEST/docs/pdf/2014_Bee_Dino_Imid_%20Rule.pdf)

Oregon Department of Agriculture does inform EPA Region 10 when it is working to institute a more restrictive regulation of a pesticide.

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**From:** Wu, Jennifer  
**Sent:** Wednesday, July 02, 2014 4:58 PM  
**To:** Carvalho, Gabriela; Liu, Linda  
**Cc:** Henning, Alan; Helder, Dirk; Peterson, Erik; Woodruff, Leigh  
**Subject:** Oregon CZARA and Pesticides

Hi Linda and Gabriela (FYI to Pesticide Team, no action needed),

Linda, as in my voicemail, I'm working on Oregon CZARA and pesticide buffers. We're in the middle of reviewing and responding to comments we received from EPA and NOAA's public notice on 12/20/13 on the NOI to disapprove Oregon's CZARA program. I was able to connect with Gabriela just now.

I'll send out a meeting invite to discuss more in a couple of weeks Ex. 6 - Personal Privacy But I thought it would be useful to let you both know a few things:

- 1) FYI - Our Oregon CZARA Pesticide Team (Alan, Dirk Helder, Erik Peterson, and Leigh Woodruff) will need to recommend to our management by August 14 whether we should approve or disapprove based on the

pesticide buffers issue. We may also have the option to keep our decision somewhat neutral pending the litigation. Pesticide buffers is 1 of 7 measures being considered. So we'll be wanting to keep you informed and also get your feedback on certain issues.

- 2) Specifically, there are a few questions. Sorry if you've already answered these before.
- a. The threshold for our disapproval was that the State does not have buffers for aerial application of herbicides on non-fish bearing streams.
  - b. I have questions related to the 1) Current pesticide labels and Court orders/BiOps 2) Scientific considerations in pesticide labels; 3) States developing their own buffers that are more stringent than FIFRA labels
  - c. My questions on this are:
    - i. Current Pesticide Labels. Based on Gabriela's August 16, 2013 write-up, it appears that aerial application of atrazine is not allowed, and the pesticide labels are silent on buffers for aerial application of 2,4-D, though there's general information on how it should be applied. Can you confirm?
    - ii. Current Pesticide Labels. What are the pesticide label requirements for aerial application of glyphosate?
    - iii. Court Orders/BiOps. Do the BiOps/court orders or related litigation outcomes speak to aerial application of herbicides on non-fish bearing streams? Are there court-mandated buffers for aerial application of atrazine, 2,4-D, or glyphosate?
    - iv. Scientific Considerations in Pesticide Labels. How does FIFRA take into account endangered species and human health risks when developing its labels? Are there write-ups specific to the pesticide labels for atrazine, 2,4-D, and glyphosate with scientific papers we can have access to? The point of this would be to see if the basis of the pesticide labels already considered scenarios that are brought up in the comments.
    - v. States Developing Their Own Buffers. While FIFRA clearly states that adhering to the label means meeting FIFRA requirements, are there other thresholds in CZARA such as needing to meet state water quality standards that would mean the State would need to come up with more restrictive pesticide buffer applications? For instance, WA and ID have state laws that require buffers when applying pesticides on non-fish bearing streams that are above and beyond FIFRA. Linda and Gabriela, are you involved in conversations with the State when they choose to apply more restrictive buffers than required by FIFRA?

FYI to Everyone, I've attached the matrix of comments we got related to pesticides. The tabs at the bottom also break down each of the comments by their sub-category. Gabriela's August 16, 2013 write-up is also attached above.

Thanks, and if these questions are relatively easy, feel free to reply by email. Otherwise, we can talk when I get back.  
Jenny Wu

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